

Psyched on science

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FREDERICK — Eleven-year-old Victoria Elliott grinned from under blue-rimmed laboratory goggles. Sitting in a West Frederick Middle School classroom Wednesday, she and other middle school students prepared clear gels used to study DNA by a process called electrophoresis.

Later in the afternoon, the students would use what they learned, and what most have seen on TV shows such as "CSI," to solve a fictitious crime. The activity was one of many in Fort Detrick's Gains in the Education of Mathematics and Science program, or GEMS, designed to foster middle-schoolers' interest in these fields.

"Every kid should have the privilege to come to a program like this," Victoria said, sitting at the laboratory table with five other students, all wearing white lab coats.

Fort Detrick created the program this year to get students interested in mathematics and science at an early age and encourage them to take the necessary preparation courses, said Edward Nolan, who directs Fort Detrick's Community Support Programs. Encouraging more young people to go into these fields means "building the bench"—replacing retiring scientists with new ones, he said.



Staff photo by Doug Koontz

Rashan Tipon works on a drawing of a bacterial culture grown from samples taken around the classroom as part of Fort Detrick's Gains in the Education of Mathematics and Science program.

The four-week program hosts 135 sixth-, seventh- and eighth-graders who were divided into four groups. Each group spends one week, Monday through Thursday, at West Frederick Middle. GEMS began July 10 and will end Aug. 3.

The program is open to students at West Frederick and children of Fort Detrick employees. Maggie Gilgallon, a teacher at West Frederick, said the majority of participants are students at the middle school.

Mr. Nolan said the program may be opened in future years to all Frederick County students.

High school seniors and undergraduate students lead the middle-schoolers in hands-on activities. Near-peer mentors probably have more of an effect on the young students than older instructors, Mr. Nolan said.

Chrissy Harvey, a Hood College senior majoring in biology, led Victoria's group in preparing the gels, which the students planned to use to identify the murderer in their afternoon activity.

"A lot of people see science as a challenge," Ms. Harvey said. "We want to show that yes, it's a challenge, but it's fun, and they can learn great things along the way."

The mentors prepared for GEMS by creating instructor's manuals and tailoring the lessons to make them interesting to middle-schoolers, said Elizabeth Leffel, a scientist at the U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) at Fort Detrick.

Ms. Leffel designed the program's curriculum with John Carra of USAMRIID and John Ezzell, a former USAMRIID scientist. She said Paulette Shockey, the middle school's principal, encouraged the scientists to focus on areas the school's curriculum doesn't address.

GEMS is modeled after a program for high-schoolers led by the Walter Reed Army Institute of Research in Silver Spring, Ms. Leffel said.

Hands-on experiences and exciting activities help create an appreciation for science a textbook might not, Mr. Ezzell said.

"So far, we've had a favorable response from the kids," he said. "They see science is anything but boring."

Earlier in the week, the students made a wave machine, which uses string to replicate sounds waves, that they could keep.

Monday, the GEMS participants took samples of areas in the room and grew the collected bacteria on plates containing a nutrient-rich gel, or agar. The groups recorded the resulting bacterial growth's texture, size, shape and its number of colonies Wednesday.

"The word 'scientific' comes from 'scientia,' which is Latin for knowledge," Mr. Ezzell said. "They're gaining knowledge about the world around them."

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